

Agency: Commerce, Community and Economic Development**Grants to Named Recipients (AS 37.05.316)****Grant Recipient: Blood Bank of Alaska****Federal Tax ID: 92-6002175****Project Title:****Project Type: Other**

Blood Bank of Alaska - High-Complexity Reference Laboratory

State Funding Requested: \$3,000,000**House District: Statewide (1-40)**

One-Time Need

Brief Project Description:

Establishing comprehensive and medically appropriate laboratory services such as Antibody Testing, Antigen Typing, Auto Immune causes of Anemia, and other blood testing services.

Funding Plan:

Total Project Cost: \$3,000,000

Funding Already Secured: (\$0)

FY2023 State Funding Request: (\$3,000,000)

Project Deficit: \$0

*Funding Details:**Not applicable***Detailed Project Description and Justification:**

Platforms Needed:

- a) Chemistry Analyser (antibody testing, etc.) \$573,000
- b) ABO/Rh Screen (typing) \$458,000
- c) E/I/A (enzyme-linked immunosorbent assay) Testing Platform \$276,000
- d) NAT (Nucleic Acid Testing) \$1,300,000

Total Platform(s) Cost \$2,607,000

Ancillary Costs* \$393,000

*staff training \$30,000

*validation cost \$163,000

*staffing \$200,000

Grand Total \$3,000,000

Based on Federal funding being made available in support of healthcare by the United States Congress for COVID relief and stimulus, the Blood Bank of Alaska makes this request for the sum of \$3,000,000 for the purpose of assuring the blood supply chain for the people of the State of Alaska.

Blood Bank of Alaska (BBA) was founded in 1962. As the sole blood and blood product provider in Alaska, BBA supplies

virtually every hospital in the state, including all tribal and military medical facilities. Our service is imperative and especially necessary to assure rural health needs are met, which would be otherwise unavailable. Our service to our military men and women across Alaska is also central to our mission.

BBA is a first responder, and is a vital member of the critical/emergency/disaster response infrastructure for the State of Alaska in the event of crisis or declared disaster. As the only Alaska-based supplier of blood and blood products in the State of Alaska, BBA is expected to meet the needs for blood, blood products and services at all times and circumstances necessary. This is made possible by our generous base of approximately 130,000 blood donors and supporters with whom we maintain direct contact. In any given year, about 30,000 Alaskans donate blood to BBA.

BBA has the infrastructure to establish a donor testing laboratory. Our consolidated facility in Anchorage was opened in February 2016, and includes space designed and ready for these purposes that will:

- Protect Alaskans from disruptions in the blood supply during emergencies (earthquakes/volcanic activity, pandemics, etc.;
- Eliminate the need for costly out-of-state testing of blood; and
- Facilitate the creation of a high level reference laboratory; and
- Create opportunities for new services and high level employment opportunities.

Because blood testing has become extremely complex over the past 35 years, BBA designed its new building to accommodate the most sophisticated equipment to make the dream of self-sufficiency in Alaska's blood needs (blood supply chain) a reality. Blood Bank of Alaska has permanent physical operations in the following communities:

- Anchorage
- Fairbanks
- Mat-Su
- Juneau

Out-of-State Testing -- Since 1994, BBA has outsourced donor testing to a testing facility in the Lower 48 due to a lack of laboratory (physical plant) capacity in Alaska. While necessary, that policy continues to:

- Add significant costs to our operations,
- Delay distribution of blood and blood products to hospitals
- Reduce the shelf life of those products, and
- Adversely impact disaster preparedness and response capability in Alaska
- Limit new and necessary lifesaving laboratory services for the state.

According to a "Security Vulnerability Assessment" conducted by the State of Alaska, Division of Homeland Security & Emergency Management in 2011, "(t)he current process would delay the immediate distribution of the blood supply in Alaska if an all-hazard event occurred." The report goes on to suggest that BBA "consider establishing a certified in-state blood testing capability."

In the 24 years since daily shipment of blood outside Alaska began, the number of tests conducted on each sample has increased from three (3) per blood unit, to an average of 14 per blood unit. In addition to the distribution delay, out-of-state testing represents an approximate annual cost of \$1.2 million and the loss of significant Alaskan employment opportunities.

New Infrastructure -- BBA's facility provides the medical infrastructure necessary to support vastly increased lab capacity, which would eliminate the risks and delays associated with out-of-state testing. The 2009 eruption of Mount Redoubt is a perfect example of how vulnerable Alaska's blood supply is to our state's geographic isolation and seismic activity. The eruption closed commercial airspace and the flights scheduled to transport blood samples from Alaska to be tested were grounded. Airspace reopened only 12 hours before Alaska's platelet inventory was due to outdate. The capacity to test blood in-state is vital to avoid the release of untested, unlicensed blood products during a natural or manmade disaster. The November 2018 earthquake and the current pandemic also point to the importance and necessity of a robust, and advanced blood testing laboratory as well as a High-Complexity Reference Laboratory in the State of Alaska.

Laboratory Design -- BBA's facility (as of FY2016) was designed to critical infrastructure standards to ensure continuous operation throughout "100-year event" natural disasters. Continuous operation is essential because the shelf-life of red blood cells is only 42 days, and that of platelets is only 3-5 days. Regular donation, testing and processing of blood is necessary to maintain a viable, prepositioned blood supply in the quantities necessary to meet Alaskans' routine and emergency needs for blood and blood products.

Full Complement of Capabilities -- It is currently projected that acquiring a full complement of equipment, staff time to create standard operating procedures, validate equipment and hiring and training will require approximately \$3 million dollars. Achieving the high level of self-reliance required by Alaska's geographic isolation is necessary to avoid disruption of the blood supply chain for both urban and rural Alaska. The Blood Bank of Alaska needs to create a High-Complexity Reference Laboratory capable of the following types of testing:

Auto Immune Causes of Anemia

- o Immune hemolytic anemia evaluation: autoimmune or drug-induced
- o Investigation of DAT-negative autoimmune hemolytic anemia
- o Investigation of drug-induced immune hemolytic anemia
- o Sickle Cell screening

Antibodies

Red blood cell antibody identification:

- o Single antibody specificity
- o Multiple antibody specificities
- o Antibody to high prevalence antigen
- o Antibody to low prevalence antigen
- o Interfering therapeutic agents investigation
- o Red blood cell autoantibody evaluations:
 - o Warm reactive autoantibody
 - o Cold reactive autoantibody
 - o Paroxysmal cold hemoglobinuria
- o Monocyte monolayer assay for determination of potential clinical significance of red blood cell antibodies

Antigen Typing

- o Antigen-negative red blood cell components
- o Phenotyped matched red blood cell components
- o High prevalence antigen negative red blood cell components

o Inventory of red blood cell and platelet components with antigen types predicted by molecular testing

Antigen Typing-Continued

- o Antigen typing of samples from transfused patients
- o ABO discrepancy investigations

Transfusion

- o Transfusion reaction investigations
- o Red blood cell and platelet compatibility testing services
- o IgA status determination

A high level reference lab will provide necessary services not currently available in Alaska, preparing the Blood Bank of Alaska and the state for the next pandemic or Covid-19 variant.

New Revenues -- Both the Donor Testing Laboratory and High-Complexity Reference Laboratory will create potential new revenue sources for BBA and the State of Alaska, as well as assure healthcare needs in Alaska by fortifying the blood resource supply chain. Testing services is projected to create gross annual revenue of approximately \$700,000 to \$1.3 million, also assuring robust infrastructure in time of emergency. Services will be sustainable.

Project Timeline:

Upon approval and availability of funding, project completion will be 14 -- 18 months

Entity Responsible for the Ongoing Operation and Maintenance of this Project:

Blood Bank of Alaska

Grant Recipient Contact Information:

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Has this project been through a public review process at the local level and is it a community priority? ☐ Yes ☒ No